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PCT/GB2004/005301



INVESTOR IN PEOPLE

The Patent Office  
Concept House  
Cardiff Road  
Newport  
South Wales  
NP10 8QQ

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South Wales  
NP10 8QQ

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NIGEL2

2. Patent application number

(The Patent Office will fill this part in)

0400351.3

- 8 JAN 2004

3. Full name, address and postcode of the or of each applicant (underline all surnames)

NIGEL ROSE  
22 FITZWALTER ROAD  
LITTLE DUNMOW  
ESSEX

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

CM6 3FH

8785073001

4. Title of the invention

METHOD OF INSULATION

5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Patents ADP number (if you know it)

6. Priority: Complete this section if you are declaring priority from one or more earlier patent applications, filed in the last 12 months.

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Date of filing  
(day / month / year)

7. Divisionals, etc: Complete this section only if this application is a divisional application or resulted from an entitlement dispute (see note f)

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NO

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Otherwise answer NO (See note d)

# Patents Form 1/77

9. Accompanying documents: A patent application must include a description of the invention. Not counting duplicates, please enter the number of pages of each item accompanying this form:

Continuation sheets of this form *NIL*

Description *3*

Claim(s) *NIL*

Abstract *NIL*

Drawing(s) *1 + 1 SN*

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for a preliminary examination and search (Patents Form 9/77)

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Signature(s)

*[Signature]*

Date *06/01/04*

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## Method of insulation

This is a process for insulating against heat loss from swimming pool walls and floors in new and existing pools. Swimming pools are mostly uninsulated. This invention will reduce heating costs by stopping some of the heat conduction between the water and the structure and, or surrounding matter.

The term swimming pool or pool is a container that will hold liquids above or below ground and holds more than 500 litres of water or liquids. Swimming pools come in a variety of shapes and sizes and are built to personal requirements and specifications and are not necessarily used for swimming in, this is a general term. The structure of the pool can be made up of anything from fibreglass, plastics, wood, concrete, bricks, and many other materials.

A disadvantage of methods of construction is that heat from the swimming pool water is transferred directly through the pool structure and into the ground or air. It can thus be very expensive to heat the pool water, particularly in the winter months.

This invention is a method in which the swimming pool sidewalls and floor are thermally insulated from the surrounding structure and matter, this system is applicable to new and old swimming pools. By internally or externally fixing suitable insulation sheets or boards to the structure by way of adhesive and, or mechanical fixings it will reduce the heat conduction from the water to the structure and or matter. Once the insulation has been fitted then any of the various finishes can be applied. If a liner pool was requested, then it would be suitable to fit the plastic liner after the insulation has been fitted and thereafter continue with the finishing. To finish the pool in another finish it would be suitable to use an adhesive to adhere to the insulation boards. This then allows the numerous finishes to be applied to finish the pool to the required specification as an example tiles, stones, paint, render.

The pool is to be constructed in the usual ways that it has been proven to be suitable. With old pools that are to have this system retrofitted the pool surface would be made suitable to apply the insulation system.

The primary object of this invention is therefore to provide a swimming pool that is thermally insulated from the surrounding structure and matter.

Another primary object of the invention is to provide a system that can be fitted to existing swimming pools.

Another primary object of the invention is to provide a system that can be designed to fit pools that have yet to be built.

Another primary object of the invention is to provide a system that is effective at reducing temperature losses.

Another primary object of the invention is to provide a system that has no or little thermal bridges.

The foregoing and other objects, features and advantages of this invention will become more apparent from the following detailed description, which proceeds with reference to the accompanying drawings.

In the drawings:

FIG. 1 is a general example of a cross sectional view, not to any set scale showing the swimming pool construction and insulation system with a PVC liner material.

- 9 - Soil.
- 10 - The pool structure.
- 14 - An adhesive to bond the insulation to the structure this may not be necessary on some applications.
- 11 - Insulation board or sheets.
- 15 - Are mechanical fixings of either plastic or metal, these may not be necessary on some applications.
- 12 - A PVC liner.
- 17 - Water.

One method of constructing an in-ground pool. You make an excavation in the ground 9; line the excavation walls and floor with wire mesh screen and then simply spray a fluid cementitious material such as gunnite 10 directly against the excavation sidewalls and the wire mesh screen to build up the side walls and floor to a 350mm thicknesses giving you the suitable pool structure. You then apply a coating of S-2625 E epoxy adhesive 14 to bond the Phenolic Insulation boards 11 of 80 mm thickness to the gunnite structure, then you drill and fix through the boards into the structure fixing a Termofitfix hammerset fixing S8 15. Then you can fit the PVC liner 12. This will give you a basic finished pool structure, which will allow you to fill with water.

Of course, alternative methods of constructing the pool can be used and the above is an example. Where I've mentioned an in ground pool this invention will work for out of ground pools and partially submerged pools. Where I've mentioned a gunnite pool, other pools of other materials and constructions are also suitable for this system. Where I've mentioned S-2625 E epoxy adhesive and Phenolic Insulation boards, other alternative adhesives and insulations boards can be used. Where I've mentioned a Termofitfix hammerset fixing S8 and PVC liner other fixings

and finishes can be used, this is a simple example. As long as the structure is suitable for its intended use and the insulation reduces the heat conduction from the water and the required finish is obtained, then many other suitable insulations and materials can be applied using this insulation system in many different variables and forms of application. As long as the basic principle of heat conduction is reduced from the contained liquid to the structure and matter. This is the basic principle of this inventive method, which will reduce heating cost of the pool. The insulation should be as uniform as possible on the walls and floor as a continuous layer.

Alternatively if the system is best suited to be fitted to the outside of the structure for certain reasons then this can be applied using suitable techniques where applicable. The best results will be achieved by placing the insulation on the internal sided of the pool but in some cases it would be more suitable to apply it on the external side of the structure.







